

MACHINE INSTRUCTION FOR ENHANCED CONTROL OF
MULTIPLE VIRTUAL PROCESSOR SYSTEM

Roger D. Arnold

Robert E. Ober

ABSTRACT OF THE DISCLOSURE

A multiple virtual processor (MVP) system using a special "YIELD" machine instruction inserted into a thread (virtual processor) at a selected point to trigger an immediate thread change (i.e., transfer of physical processor control to another thread). When the physical processor processes a YIELD instruction, the task thread surrenders control of the physical processor, and an otherwise idle thread is selected by a thread scheduling mechanism of the MVP system for loading into the physical processor. In one embodiment, the YIELD instruction includes an input operand that identifies the hardware signal on which the issuing thread intends to wait, and a result operand indicating the reason for reactivation.